AFL

Test and Inspection

FOCIS

Fiber Optic Connector Inspection System

User's Guide

www.AFLglobal.com or (800) 321-5298, (603) 528-7780

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Product Overview

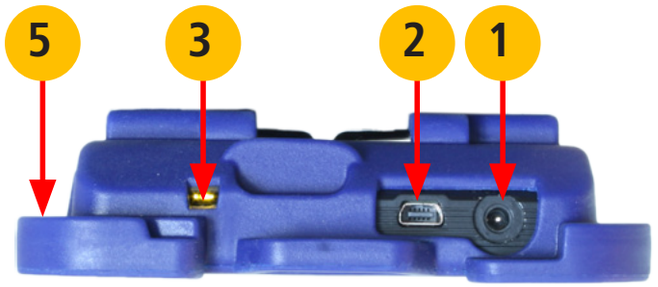
The NOYES family of FOCIS integrated fiber inspection solutions provides network personnel with the capability to document fiber connector cleanliness. FOCIS combines a palm-sized DFD1 Touchscreen Tablet, a DFS1 Digital FiberScope and AFL SimpleView Plus inspection software to provide the inspection and analysis power of current laptop and probe solutions and the ergonomics, ease of use, ruggedness and ownership costs of basic "live only" viewers. FOCIS solutions are future-proof because their optical resolution and detection specifications exceed current international standards and their software-based inspection and analysis applications can be upgraded as market requirements evolve.

The DFD1 Touchscreen Tablet is a purpose-built, hand-held Windows® computer equipped with AFL SimpleView Plus inspection software. Its bright, crisp display provides detailed images and its Zoom/Pan feature allow users to identify the smallest particles, scratches and imperfections. Its portrait orientation makes it easy to hold and operate with just one hand. Unique to FOCIS is a patent-pending feature, which simplifies before/after, jumper/bulkhead, input/output and other common fiber cleanliness comparisons. Additional features include image capture and store/recall. Up to 1000 fiber images may be stored in on-board memory and images may be transferred via any off-the-shelf USB memory stick or SD flash card. The DFD1 incorporates a proven shock-absorbing rubber boot that doubles as a tilt stand and hanger.

The DFS1 Digital FiberScope is a high resolution video inspection probe. It is equipped with a focusing knob and an image capture button. An extensive assortment of DFS1 adapter tips allow it to be used with all types of fiber connector ferrules and bulkhead connectors. Bulkhead tips are available in multiple lengths as well as straight and 60° angle. Connector adapters are available PC/UPC, APC polished ferrule in 1.25 mm, 2.5 mm and MTP/MPO connectors.

Hardware Overview

DFD1 Touchscreen Tablet Controls and Features



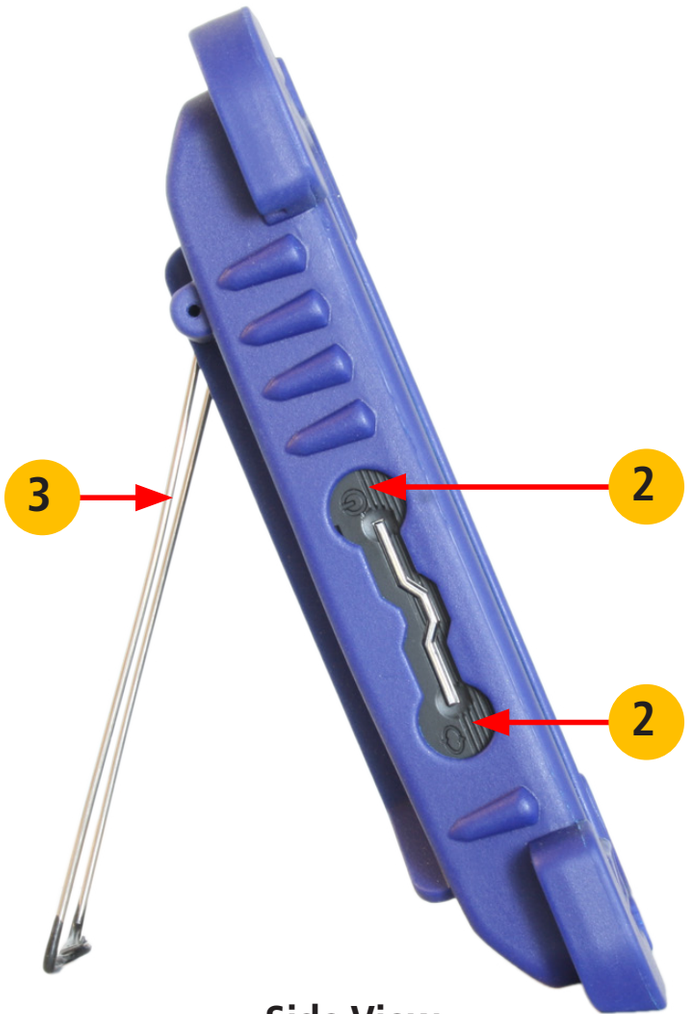
Top View

Front View

Ref	Control/ Feature	Description
1	Power port	This is the interface for the AC power adapter/charger.
2	Mini USB function port	• Allows connection to DFS1 Digital FiberScope for fiber end-face inspection and image capturing. • Allows the user to transfer saved images to a USB memory stick.
3	AC adapter/ charger indicator	When ON, indicates that an AC adapter is connected to DFD1. • Red light ON indicates that battery is charging. • Green light ON indicates that battery is fully charged.
4	Touchscreen display	Contains on-screen controls and menus. Used to show live, captured and saved fiber end-face images, live image settings, image capture modes, general settings and Image Manager.
5	Boot	A proven shock-absorbing rubber boot.
6	Loop	This loop can be used as a hanger.

Hardware Overview

DFD1 Touchscreen Tablet Controls and Features



Side View

Bottom View

Ref	Control/ Feature	Description
1	Power Button	Provides several functions as follows: • Press to power up your DFD1 Touchscreen Tablet. • Press and hold for less than 7 seconds to enable sleep mode. • Press and hold for more than 7 seconds to fully shut down your DFD1 Touchscreen Tablet.
2	Unused button	**Note:** this button has no function.
3	Bail	Bail can be used as a tilt stand or hanger.
4	SD flash card slot	SD flash card may be used for storing and transferring fiber end-face images.

Hardware Overview

Back View

AC Adapter with changeable plugs

DFD1 Controls and Features

1 - Cable Retainer

A cable retainer is designed to provide strain relief for the USB cable.

DFD1 Accessories

USB to mini USB converter cable

2 - USB to mini USB converter cable is provided with your DFD1 Touchscreen Tablet. This cable allows connection of the DFS1 Digital FiberScope (USB plug) to the DFD1 Touchscreen Tablet (mini USB port).

AC Adapter

An AC adapter supplied with your DFD1 features four interchangeable AC adapter plugs for the following regions: North America, Europe, United Kingdom, and Asia.

- Choose the appropriate AC adapter plug for your location and place it into the back of the AC adapter/charger.
- To change the plug, remove it from the back of the AC adapter/charger.
- Place another AC adapter plug into position.

Hardware Overview

DFS1 Digital FiberScope

For detailed information on the DFS1 Digital FiberScope and DFS1 Accessories, refer to the DFS1 quick reference guide provided with your DFS1 or available at www. AFLglobal.com.

Getting Started

Connecting AC adapter

The DFD1 Touchscreen Tablet can simultaneously operate and charge the internal battery while connected to the provided AC adapter. To connect the AC adapter:

- Plug the AC adapter/charger into a standard wall outlet.
- Connect the AC adapter/charger to the power port located on the DFD1 top panel (A).
  - The AC/Charger indicator (B) will turn on Red if the battery requires charging.
  - The AC/Charger indicator turns Green when battery is fully charged.

Top View

Getting Started

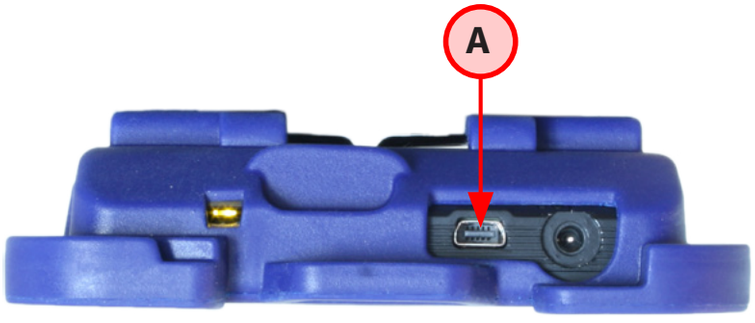
How to Power up and Shut down

Side View

- Press the Power button (A) to power up your DFD1 Touchscreen Tablet.
- Press and hold the Power button (A) for less than 7 seconds to enable sleep mode.
- Press and hold the Power button (A) for at least 7 seconds to fully shut down your DFD1 Touchscreen Tablet.

Note: The DFD1 Touchscreen Tablet powers up automatically whenever the AC adapter is plugged into the power port.

Connecting the DFS1 Digital FiberScope



Top View

Using the supplied USB to mini USB converter cable, plug the USB connector of the DFS1 into the DFD1 USB port (A).

DFS1 Digital FiberScope Basics

Inspecting Fibers and Bulkhead Connectors with the DFS1

The following instructions assume the DFS1 Digital FiberScope is configured with the appropriate adapter tip installed*, the DFD1 Touchscreen Tablet is powered up, the DFS1 is connected to the DFD1, and real-time images from the DFS1 are currently being displayed on the DFD1.

1. If testing an optical fiber connector:
   - Slide the ferrule of the optical fiber into the installed adapter probe tip, using caution not to contaminate the end-face of the fiber connector.
   - A dark circle will appear on the attached device display.
2. If testing an optical fiber connector mounted in a bulkhead adapter:
   - Slide the probe adapter tip into the bulkhead adapter.
   - Adjust the angle of the adapter tip until a dark circle appears on the attached device display.
3. Rotate the Focus Adjust Knob on the DFS1 clockwise or counter-clockwise until the displayed circle is in sharp focus.
4. Once a good image has been obtained, it may be captured pressing the Display Capture button on the DFS1, or by tapping the Capture icon on the DFD1 Touchscreen Tablet.
   - Either of these actions results in the DFD1 freezing the displayed live image and present it as a still image in the Image Capture mode.

* Refer to the DFS1 Digital FiberScope Quick Reference Guide supplied with your DFS1 and available at www.AFLglobal.com

Selecting and changing DFS1 adapter tips

Refer to the DFS1 Digital FiberScope Quick Reference Guide supplied with your DFS1 and available at www.AFLglobal.com

Software Overview

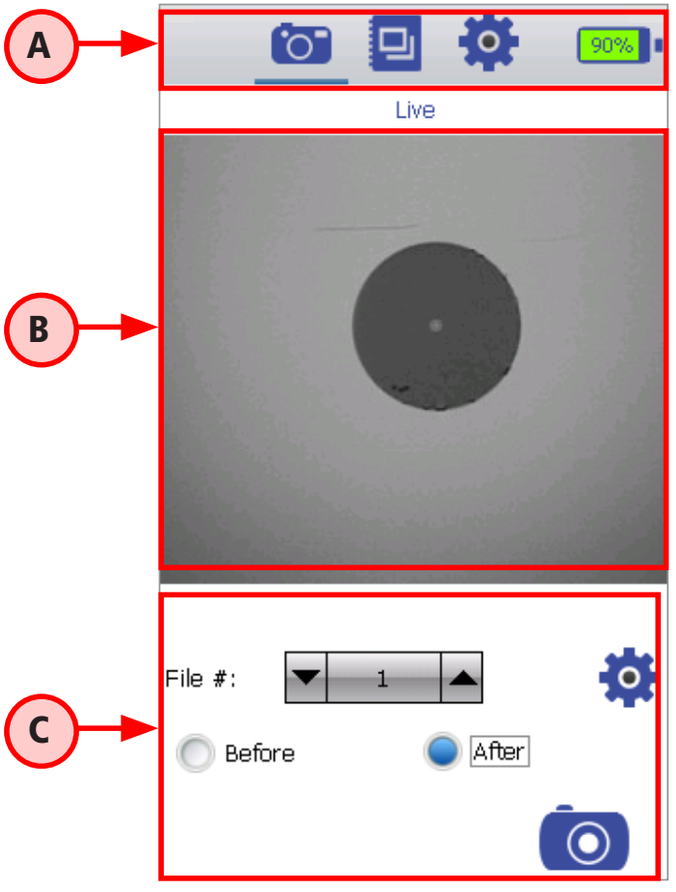
AFL SimpleView Plus Inspection Software

The SimpleView Plus inspection software provides detailed fiber end-face images for live fiber inspection, image capture, and image store/recall. Its Zoom and Pan features allow users to identify the smallest particles, scratches, and imperfections. A unique patent-pending feature, the image pair mode, simplifies before/after, input/output, cleaning, mating and other common fiber cleanliness comparisons. Additional features include image capture and store/recall. Up to 1000 fiber images may be stored in on-board memory and images may be transferred via any off-the-shelf USB memory stick or SD flash card.

DFD1 Touchscreen Tablet Screen Structure

The DFD1 Touchscreen Tablet display is divided into several sections and can be summarized as follows:

A	Operating modes and Battery charge state field. See page 13 for details.
B	Image Viewer. See page 14 for details.
C	Image Capture and Preview utilities field. See page 15 for details.



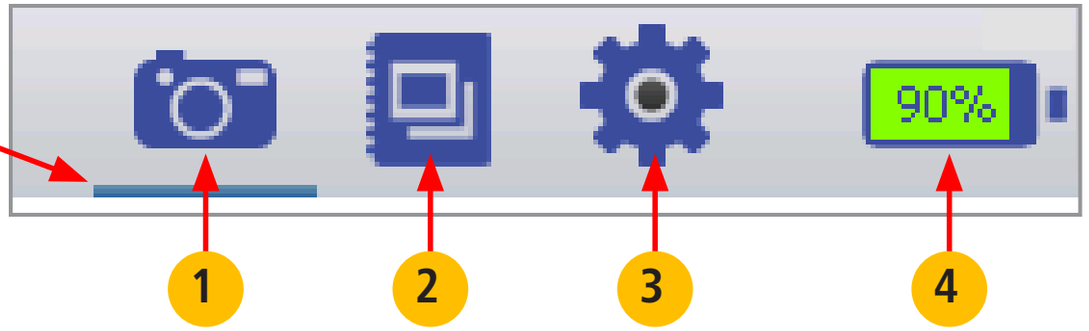
Software Overview

A Operating Modes Summary

Operating modes field contains various icons.

- Each icon represents a different operating mode
- Tap on a mode icon to select the desired operating mode

This bar/tab indicates the currently active mode



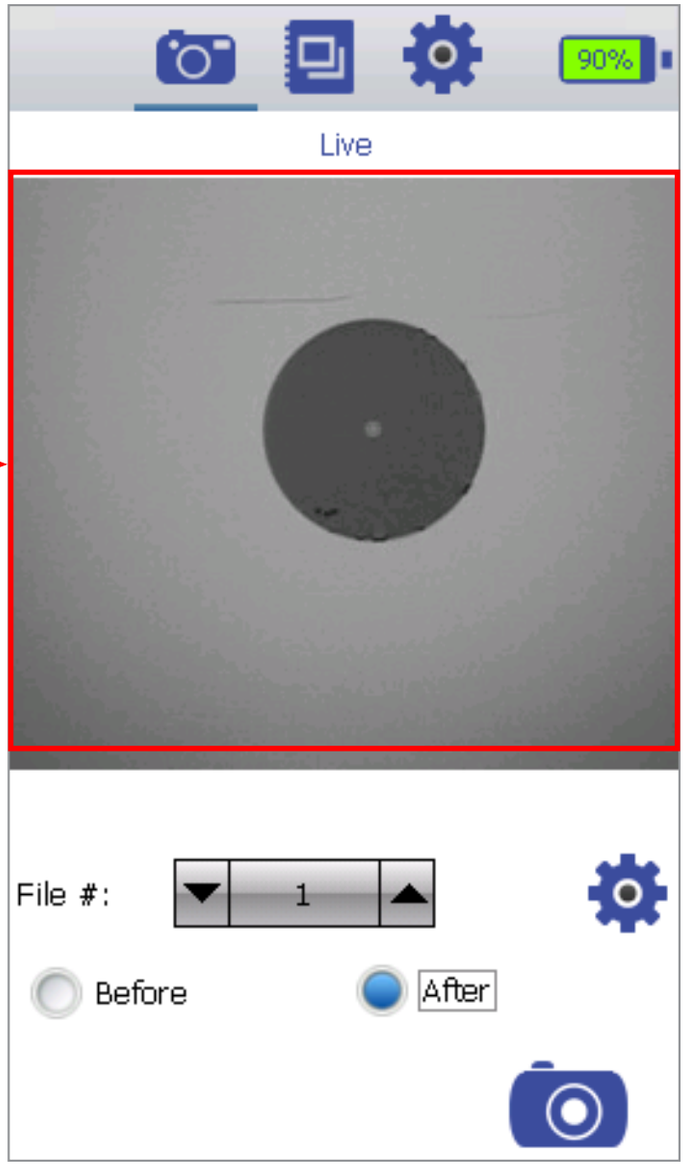
Ref	Icon	Feature/Mode	Description
1		Live Image Mode	This icon represents the Live Image mode. When in any other mode or screen, tapping this icon will navigate to the Live Image mode screen.
2		Image Manager	Tap on this icon to display the Image Manager mode.
3		Settings	Tapping this icon will select the Settings mode where users perform General and Capture mode setup, change Power settings and view the version information in the About screen.
4		Battery State	This field provides information about the battery charge state or remaining capacity of the battery.

Software Overview

B Image Viewer Summary

The Image Viewer occupies the middle part of the DFD1 screen. It displays one of the following:

- When DFD1 operates in the Live Inspection mode, it displays a real-time image of a fiber end-face that is being inspected.
- When DFD1 operates in the Image Capture and Preview mode, it displays a captured image that is being previewed before saving.
- When DFD1 operates in the Image Review mode, it displays a previously stored image or image pair.

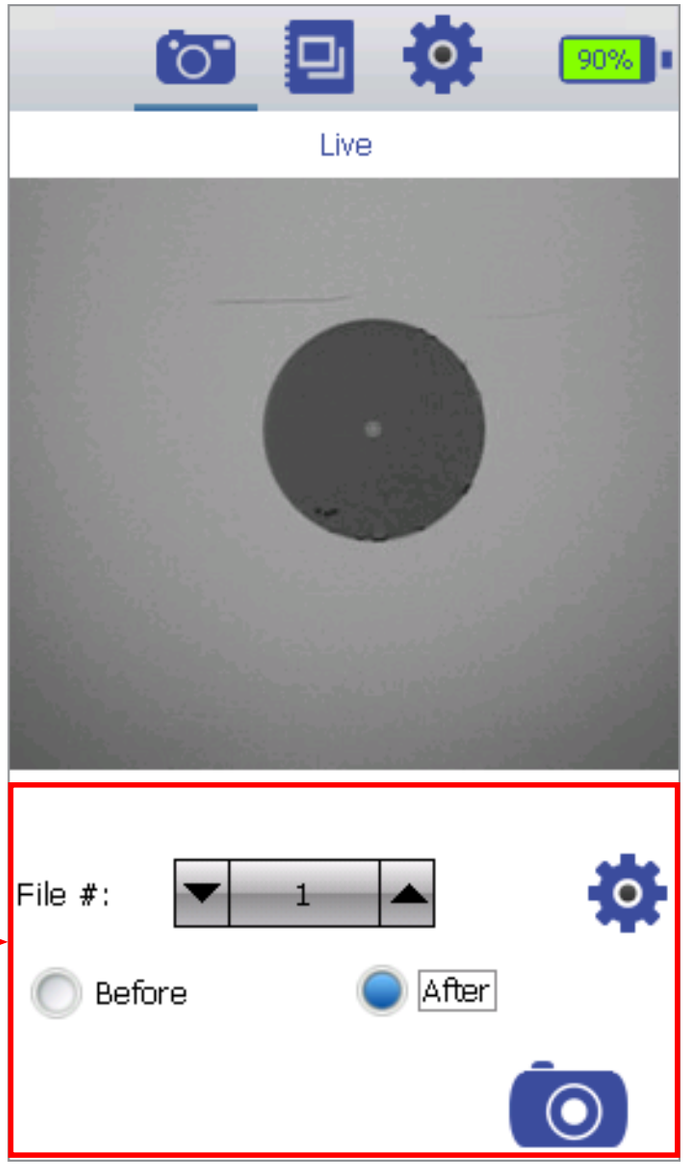


Software Overview

C Image Capture and Preview Utilities Field Summary

Image Capture and Preview Utilities field provides several functions:

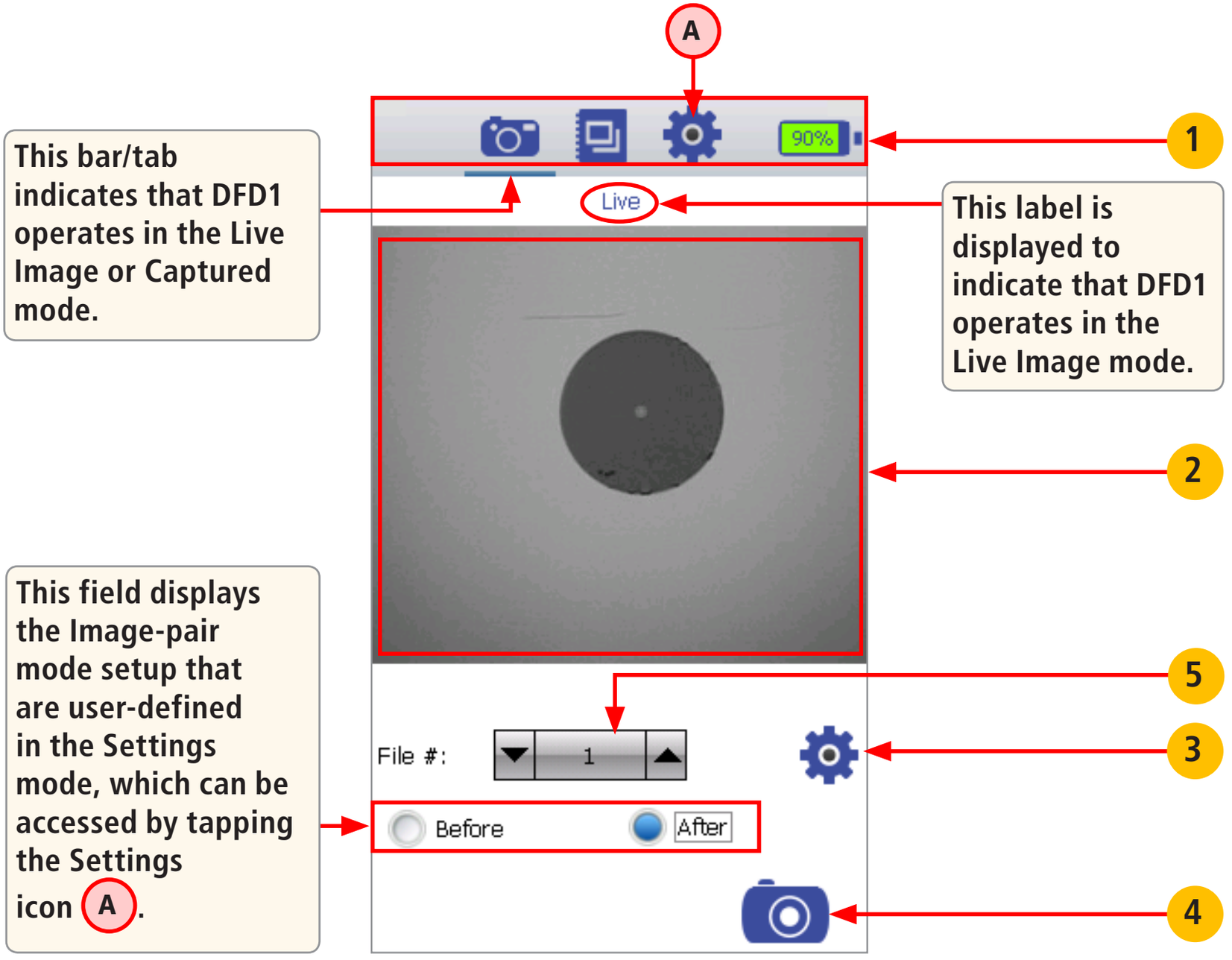
- In the Live Image mode, this field provides access to the Live Image Settings mode and provides image capturing function.
- In the Captured Image Preview mode, this field allows the user to review the captured image and either delete or save it in user-defined folders.



Operating Instructions

Live Image Inspection Mode

The Live Image mode displays real-time images of the fiber end-face that is being inspected with the DFS1 Digital FiberScope.



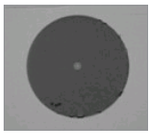
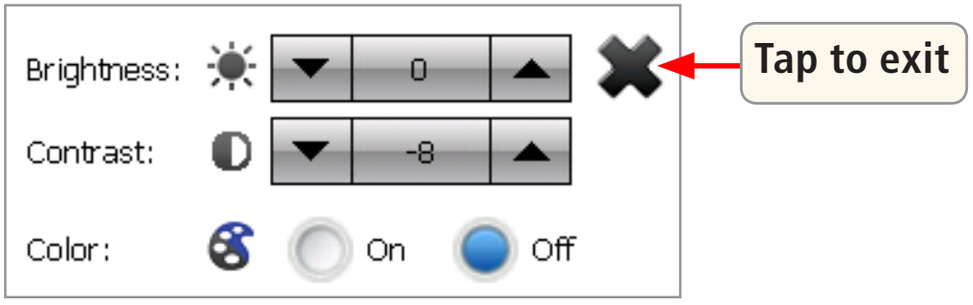
This bar/tab indicates that DFD1 operates in the Live Image or Captured mode.

This label is displayed to indicate that DFD1 operates in the Live Image mode.

This field displays the Image-pair mode setup that are user-defined in the Settings mode, which can be accessed by tapping the Settings icon (A).

Operating Instructions

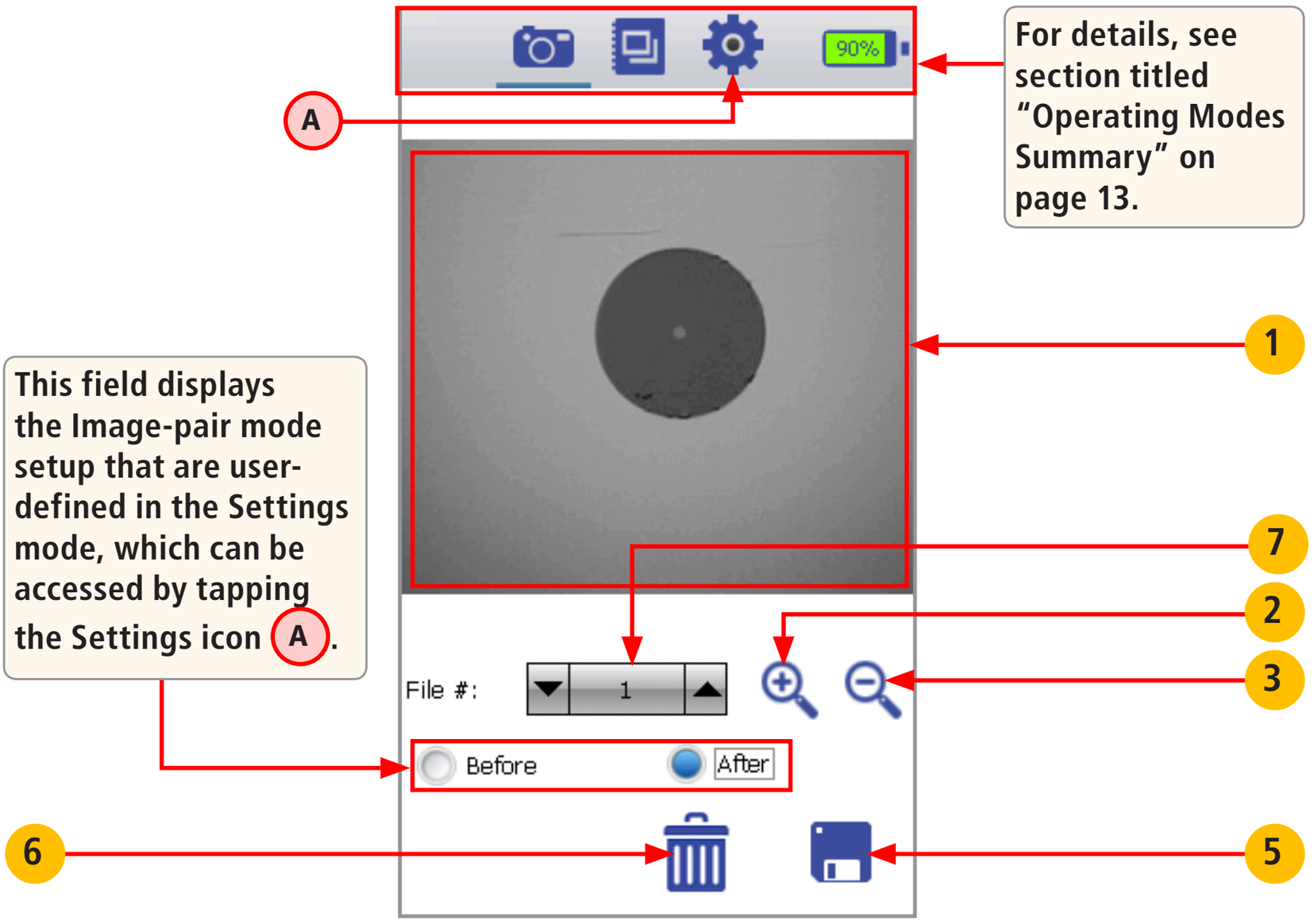
Live Image Inspection Mode

Ref	Icon	Feature/Mode	Description
1		Operating modes	For details, see section titled “Operating Modes Summary” on page 13.
2		Image Viewer	This field displays a real-time image of a fiber end-face that is being inspected.
3		Live Image Settings	While in the Live Image mode, tapping on this icon will display the Settings screen and allow the user to choose Live Image Brightness, Contrast and Color settings. 
4		Image Capture	Tapping the Capture icon will freeze the displayed live image and switch to the Capture mode, where the captured image can be analyzed and saved or deleted.
5		File Number	This field displays the current file number, which may be changed by tapping the Up or Down arrow. Note: Once the image has been saved in the Capture mode screen, the file number is automatically incremented.

Operating Instructions

Image Capture Mode

The Image Capture mode displays a still image of the fiber being inspected. This mode allows the user to preview the captured images, change the currently displayed file number and either store or delete the displayed image. The Capture mode is accessed from the Live Image mode when the Capture icon is pressed.



Operating Instructions

Image Capture Mode

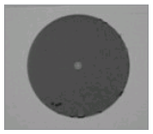
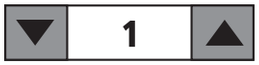
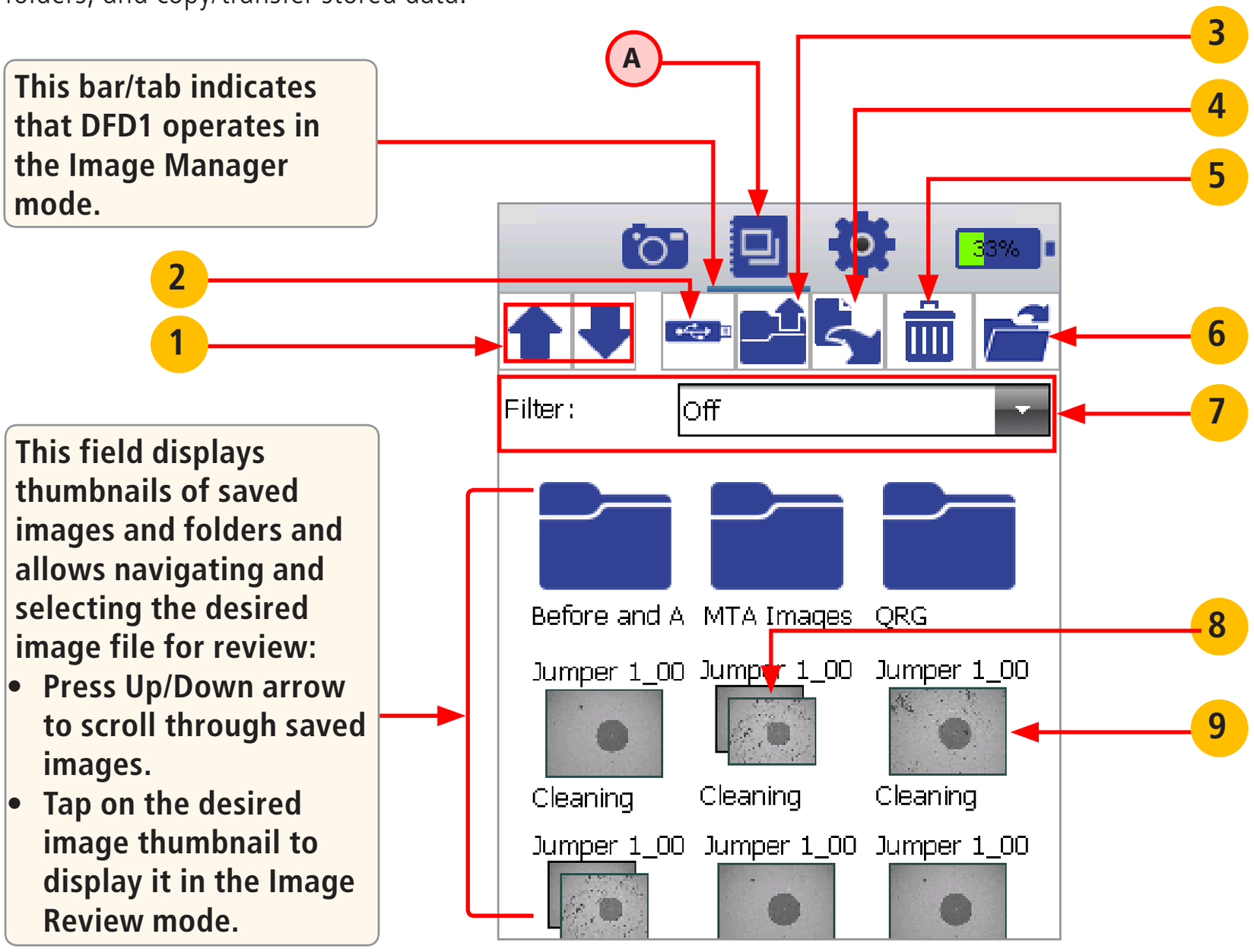
Ref	Icon	Feature	Description
1		Image Viewer	This field displays a still image of the fiber being inspected and provides zoom and pan functionality.
2		Zoom in	Tap to increase magnification, get more detailed view of the displayed image. Press and hold for continuous Zoom in.
3		Zoom out	Tap to decrease magnification, get less detailed view of the displayed image. Press and hold for continuous Zoom.
4		Pan	Press and hold the fiber-end image displayed in the Image Viewer to drag it to the desired location within the Image Viewer window.
5		Save	Tapping the Save icon will store the displayed still image to internal non-volatile memory or an external SD flash memory card. After saving, the DFD1 will revert to the Live Image mode.
6		Delete	Tapping the Delete - Trash can icon will discard the currently displayed still image. After deleting, the DFD1 will revert to the Live Image mode.
7		File Number	This field displays the current file number, which may be changed by tapping the Up or Down arrow. Note: Once the image has been saved in the Capture mode screen, the file number is automatically incremented.

Image Manager

The Image Browser screen is displayed by tapping the Image Browser icon - (A). This mode provides file manager functions enabling users to browse and select stored results for review, create new folders, and copy/transfer stored data.

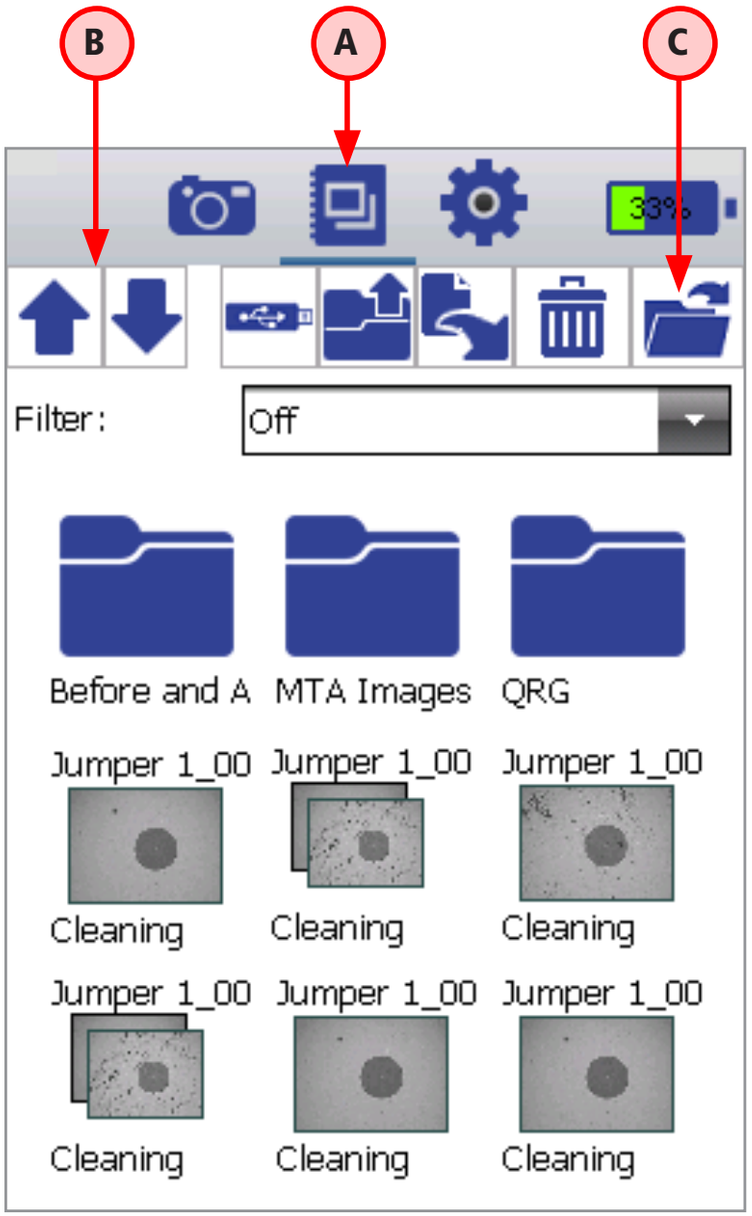


Operating Instructions

Image Manager

Ref	Icon	Feature	Description
1		Page Up/Down	Tap to scroll through saved image files.
2		Select Drive	Tapping this icon (USB Flash Drive) launches the Drive selection dialog and allows the user to select the desired drive for images browsing (SD card when applicable or Internal drive).
		One Level Up Directory	Tapping this icon will go to the parent directory (one level up) of the current directory.
4		Copy	Tapping this icon will copy the selected file or folder to media of your choice.
5		Delete	Tap to delete the currently selected image. When prompted to confirm, tap Yes or No.
6		Open	• With an image or image pair selected, tap to open the currently selected image or image pair. • With a folder selected, tap to collapse the currently selected folder.
7		Filter	This feature allows the user to sort and display images by a user-defined filter: off, before/after, input/output, cleaning, mating, documentation, and unpaired.
8		Image pair	An image pair that was saved with one of Pair Mode option enabled in the Capture Settings mode (see page 25 for details).
9		Single image	A single image that was saved with Pair Mode off (see page 25 for details).

How to Open Images for Review

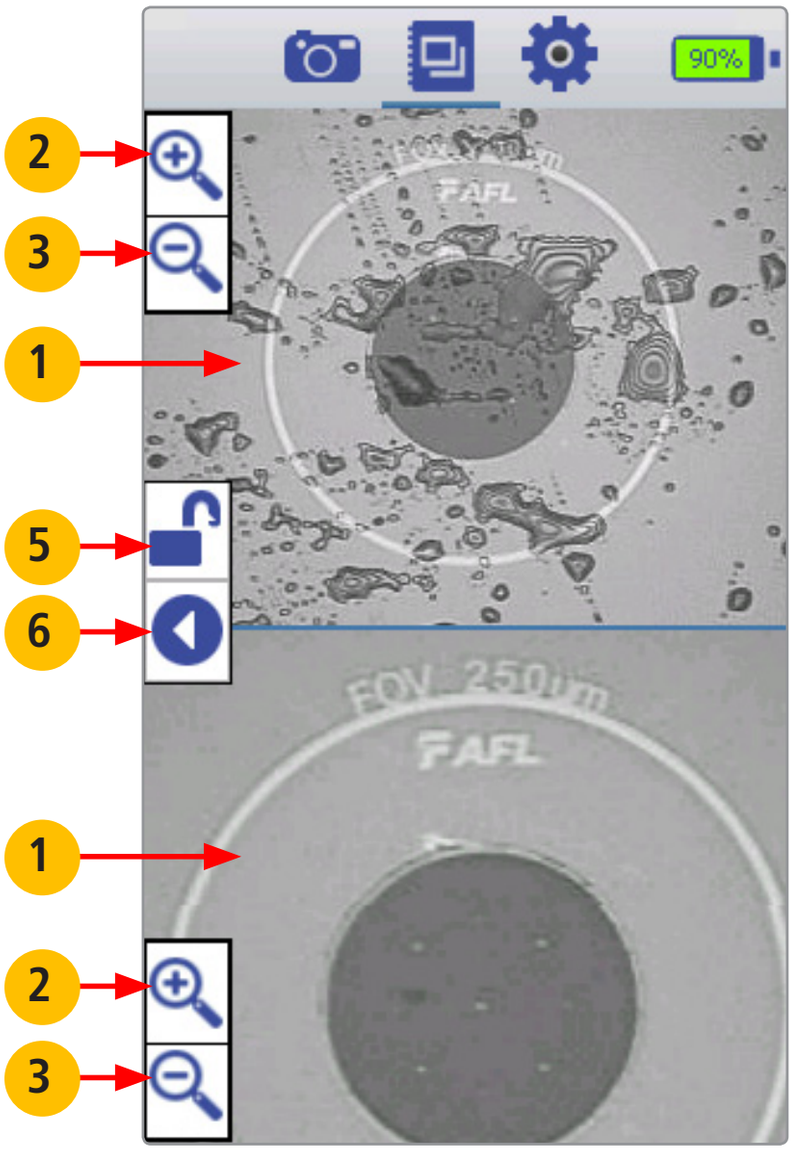


To review the previously saved image or image pair, perform the following:

1. Open the Image Browser by tapping the Image Browser icon - **A**.
2. Navigate to the desired image
   - Tap Up/Down arrows **B** to scroll through saved images.
   - To collapse folders, select a folder and tap on the Open icon **C**.
3. With the desired image selected, tap on the Open icon **C** or tap on the selected image thumbnail.
4. The selected image or image pair will be displayed in the Image Review screen (as shown on page 23).

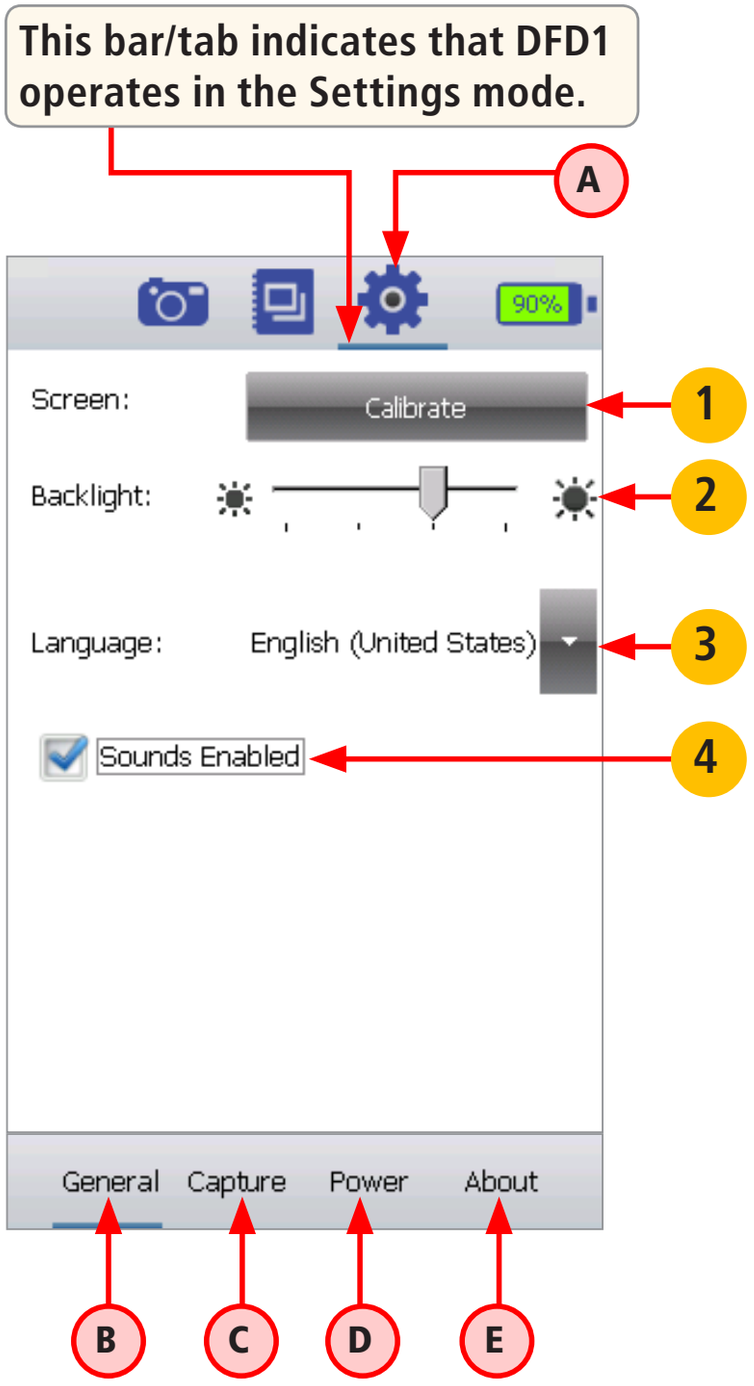
Operating Instructions

Image Review Mode Summary



Ref	Icon	Description
1	Image Viewer	Displays the selected image for review and provides zoom and pan functionality.
2		Tap to increase magnification, get more detailed view of the displayed image. Press and hold for continuous Zoom in.
3		Tap to decrease magnification, get less detailed view of the displayed image. Press and hold for continuous Zoom out.
4	Pan	Press and hold the fiber-end image displayed in the Image Viewer to drag it to the desired location within the Image Viewer window.
5		Tap to unlock/ lock a paired image. In the image pair preview, the unlock feature allows the user to individually zoom and pan each image in the pair mode.
6		Tap to revert to the Image Manager screen.

Settings Mode Summary



The Setting mode is accessed by tapping the Settings icon - (A).

This mode allows the user to perform various setup functions as follows:

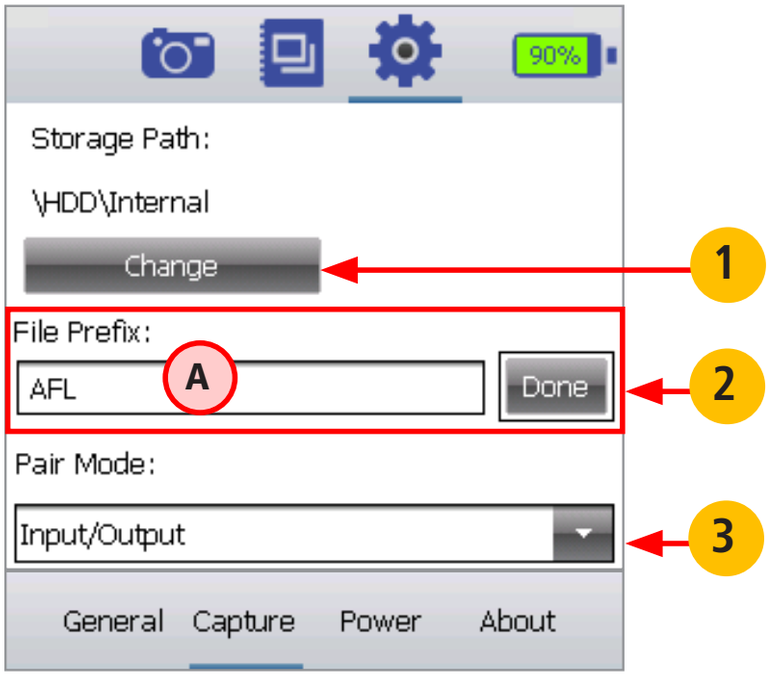
- General setup - (B)
- Image Capture mode setup - (C)
- Power setup - (D)
- View version information - (E)

Tap on a function name to display the desired function screen.

General Setup

Ref	Setup Parameter	Description
1	Calibration	Tapping on this button allows the user to perform screen calibration. Follow on-screen instructions.
2	Brightness	Press and drag slider to the left/right to decrease/increase brightness.
3	Language	Tap on ▼ to display a list of available languages.
4	Sounds	Enables/disables Sounds.

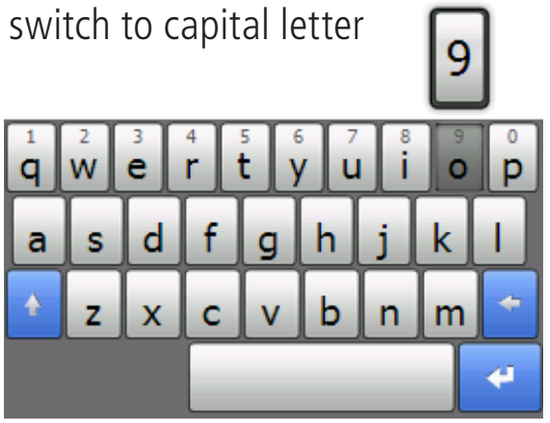
Image Capture Setup



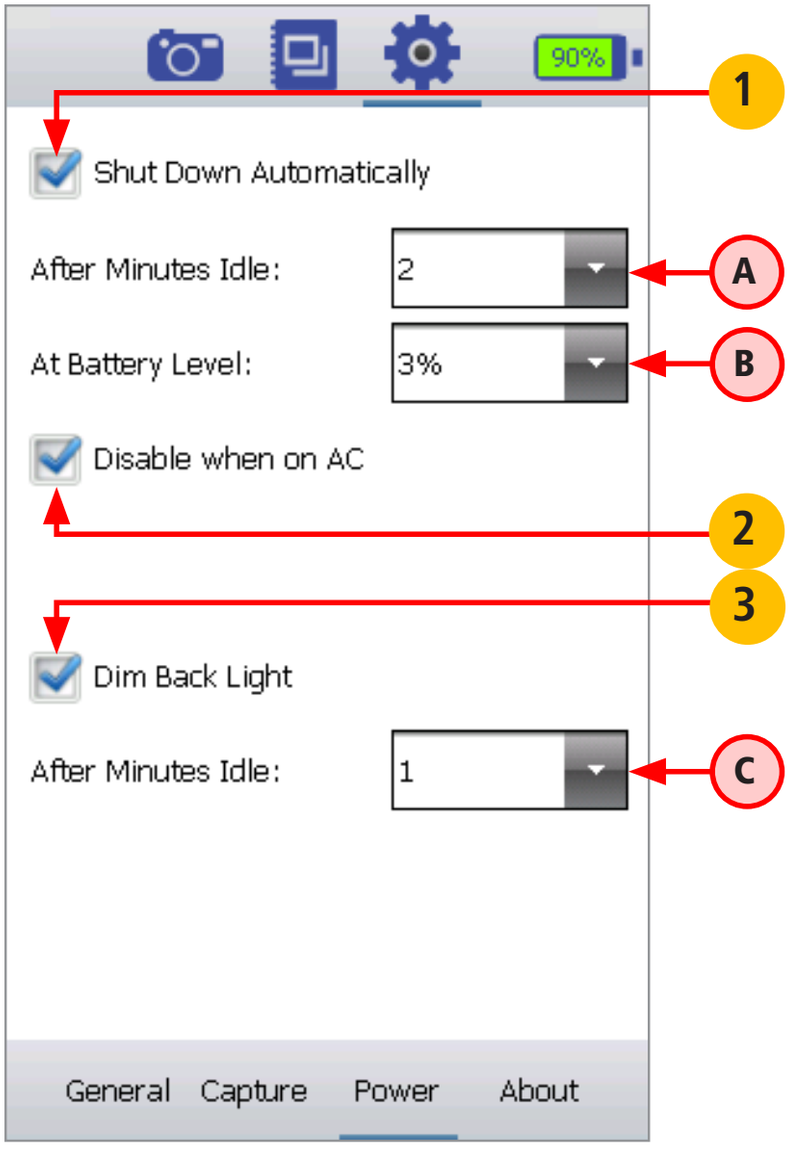
Ref	Setup Parameter	Description
1	Change Storage Path	• Tap to display a list of available drives and folders. • Navigate to the desired folder and then tap OK to make it current. • To create a new folder, tap on the New Folder icon. Using the displayed Text Editor enter new folder name and then tap OK. The newly created folder automatically becomes the current folder.
2	File Prefix field	Allows creation of a user-defined file prefix for images identification. • Tap anywhere on the prefix field (A) to display the Text Editor. • Enter prefix, then tap Done.
3	Pair Mode	• Tap on to display a list of available image pair modes. • Tap on the desired mode to select.

Text Editor

- Tap to enter letters
- Press and hold to enter numbers (top row)
- Tap to switch to capital letter



Power Setup



Ref	Setup Parameter	Description
1	Auto Shutdown	Tap to check (enable) or uncheck (disable) the Auto shutdown feature. • When enabled, the user may set up the Idle Timer (A) and Battery Level limits (B) by tapping on ▼ and selecting the desired option from a drop-down menu. • DFD1 will automatically shut down after reaching the user-defined time of inactivity and/or battery charge level (whichever limit is reached first).
2	Auto Shutdown Off	Tap to check (enable) or uncheck (disable) the Auto shutdown feature when the DFD1 unit is connected to an AC adapter/charger.

Continued on next page —>

Operating Instructions

Power Setup

Ref	Setup Parameter	Description
3	Back Light Dimmer	Tap to check (enable) or uncheck (disable) the Back Light Dimmer. When enabled, the user may set up the Dimmer Timer C by tapping on ▼ and selecting the desired option from a drop-down menu.

About Screen

The About screen provides the user with the OS version and FOCIS Software version information.

FAQs

Q: Is it be possible to load the FOCIS software onto another tablet or hand-held computer?

A: FOCIS application software has been designed to work in a Windows® CE environment to achieve rapid start-up and low licensing costs. It may be possible to load it onto other CE devices as long as the entire environment (memory, drivers, etc) is present. AFL does not guarantee that the software bundled in FOCIS will operate elsewhere. Also, AFL does not provide this software in a form that will facilitate such an installation.

Q: Can the DFS1 Digital FiberScope be used with other Windows CE devices?

A: The FOCIS DFD1 Touchscreen Tablet is custom engineered to have the capability to power the DFS1 Digital FiberScope from its mini USB port. It also includes the drivers and other software necessary to support high-resolution streaming video, which enables the DFS1 probe video output to be displayed. Most of the platforms we tested that had a mini USB ports did not provide a +5 volt output for the probe and many did not support streaming video.

Q: Can I download other application software to the DFD1 Touchscreen Tablet?

A: We do not guarantee that the DFD1 Touchscreen Tablet will continue to function properly if users download additional applications.

Warranty Terms and Conditions

All NOYES Test and Inspection products are warranted against defective material and workmanship for a period of (1) one year from the date of delivery to the end user. Optional Extended Warranty starts at the end of the standard (1) one year warranty period. Any product that is found defective within the warranty period, will (at the discretion of NOYES) be repaired or replaced. Warranty will be voided if the product has been repaired or altered by other than an authorized NOYES repair facility or when it has been subjected to misuse, negligence, or accident.

In no case shall NOYES liabilities exceed the original purchase price.

Product Registration

Please take a few minutes to register NOYES products at

http://marketing.noyesfiber.com/acton/media/2238/reg

Registering your product will allow you to take advantage of the latest updates and special offers from NOYES. Providing this information will allow us to better serve you.

Contact Us: Returning Equipment

To return equipment, please contact NOYES to obtain additional information and a Service Request (S.R.) number. To allow us to serve you more efficiently, please include a brief description specifying the reasons for the return of the equipment.

AFL, NOYES Test and Inspection Division

16 Eastgate Park Road, Belmont, NH 03220

Phone 800-321-5298 • 603-528-7780

Email NOYESTechSupport@AFLglobal.com

Repair Services

Please contact customer service for a return authorization number prior to sending your NOYES test equipment in for repair or calibration.

USA Repair and Calibration services

AFL

NOYES Test and Inspection Division

16 Eastgate Park Road

Belmont, NH 03220

603-528-7780

800-321-5298

Europe Repair and Calibration services

Fujikura Europe Ltd.

C51 Barwell Business Park

Leatherhead Road

Chessington, Surrey, KT9 2NY

+44 (0) 208 240 2020

Standards Compliance Information

The DFD1 Touchscreen Tablet has been designed and tested to comply with the relevant sections of any applicable specifications including full compliance with all essential requirements of the applicable EU Directives.

Safety Information

CAUTION! Never view a live fiber. Never look directly into the optical outputs of fiber optic network equipment, test equipment, patch cords and jumpers. Laser radiation is harmful to eyes.

NOTE! NOYES DFD1 Touchscreen Tablet contains no user serviceable parts.

- Do not remove the protective boot.
- This instrument must be returned to NOYES or authorized agents for repair.

NOTE! Refer to your company's safety procedures when working with optical systems.

NOTE! Follow your company's approved cleaning procedures.

Test and Inspection

Thank you for choosing NOYES Test and Inspection!

www.AFLglobal.com or (800) 321-5298, (603) 528-7780

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